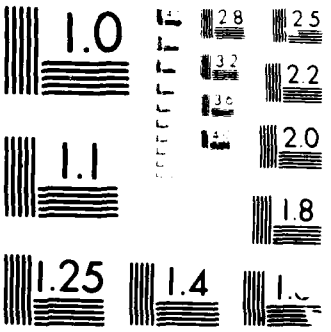
AD-A191 766 REAL-TIME DETECTION OF DISSOLVED FREE AMINO ACIDS AND AMMONIUM IN SEAWATER(U) NAVAL OCEAN SYSTEMS CENTER SAN DIEGO CA S H LIEBERMAN ET AL FEB 88 1/1

UNCLASSIFIED F/G 6/3 NL



AD-A191 766

REPORT DOCUMENTATION PAGE

1a. REPORT SECURITY CLASSIFICATION UNCLASSIFIED	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S)

6a. NAME OF PERFORMING ORGANIZATION Naval Ocean Systems Center	6b. OFFICE SYMBOL (if applicable) NOSC	7a. NAME OF MONITORING ORGANIZATION Naval Ocean Systems Center	
6c. ADDRESS (City, State and ZIP Code) San Diego, California 92152-5000		7b. ADDRESS (City, State and ZIP Code) San Diego, California 92152-5000	
8a. NAME OF FUNDING/SPONSORING ORGANIZATION Naval Facilities Engineering Command	8b. OFFICE SYMBOL (if applicable) NFAC	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER	
8c. ADDRESS (City, State and ZIP Code) 200 Stovall Street Alexandria, VA 22332		10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO.: 61152N	PROJECT NO.: ME65 / TASK NO.: RR0000101 / AGENCY ACCESSION NO.: DN306 250

11. TITLE (include Security Classification)

Real-Time Detection of Dissolved Free Amino Acids and Ammonium in Seawater

12. PERSONAL AUTHOR(S)

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13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Presentation/speech	FROM Jan 1988 TO Jan 1988	February 1988	1

16. SUPPLEMENTARY NOTATION

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

Dissolved free amino acids (DFAAs) and ammonium are important nutrients in marine microbial food webs. DFAA concentrations are most often studied by high-pressure liquid chromatography of fluorescent derivatives with o-phthaldialdehyde (OPA). This procedure is laborious, requires extensive sample handling, and yields results hours or days after sampling.

A fluorescent monitoring system for DFAAs, other primary organic amines, and ammonium was developed that is automated and continuous, and provides results in real-time. A gently pumped stream of seawater is reacted with an OPA/mercaptoethanol/buffer reagent and passed under the tip of a fiber optic probe supplying excitation light below 400 nm. The fluorescent signal, with a maximum at 455 nm, is transmitted by the probe to an optical multichannel analyzer employing a linear photodiode array. A plot of fluorescent intensity vs. time is recorded. The signal is linear in the range 1 to 100 nM alanine equivalents.

A 24 hour time series taken at a station in San Diego harbor will be presented, with an assessment of the system's utility in monitoring diurnal biogeochemical and tidal cycles.

Presented at the American Geophysical Union, Ocean Sciences Meeting, 18-22 January 1988, New Orleans, LA.

A-1

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT	21. ABSTRACT SECURITY CLASSIFICATION	
☐ UNCLASSIFIED/UNLIMITED ☒ SAME AS RPT ☐ DTIC USERS	UNCLASSIFIED	
22a. NAME OF RESPONSIBLE INDIVIDUAL S.H. Lieberman	22b. TELEPHONE (Include Area Code) (619) 553-2778	22c. OFFICE SYMBOL Code 522

DD FORM 1473, 84 JAN

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